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EAST GERMANY/Type 20-KVD-25 diesel engine development

## ADVANCED REPORT FOR NAVY USE ONLY

The INSTITUT FUER MOTORENBAU LUDWIGSFELDE is charged with developing a 20 cylinder, 4 cycle, 2500 HP diesel known alternately as 20-KVD-25 and D-2,500. The main bottlenecks in preparing a prototype is the acquisition of crankshafts and bearings.

Encl: (1) (ONI ONLY) Ex Clipping from East Berlin Neues Deutschland edition of 18 April 1956 (Unclassified)

1. INSTITUT FUER MOTORENBAU LUDWIGSFELDE.

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Former VEB KONSTRUKTIONEN & ENTWICKLUNGSBEREICH (officially abbreviated K.E.B.) ROSLAU was recently renamed INSTITUT FUER MOTORENBAU LUDWIGSFELDE. Despite its new name, it was still housed in old ROSLAU facilities. It was planned to take over new facilities on the premises of INDUSTRIEWERKE LUDWIGSFELDE (I.W.L.) at LUDWIGSFELDE in April/May 1956. The office was headed by Herr BOEHKE, fru, who will remain in charge after the move. It employed about 180 hands; in LUDWIGSFELDE, staff will probably be reduced to about 120.

2. Mission.

Mission of the office were manifold: conduct test-stand operations of all diesel engines designed and built in any SOVETONE plant; design and develop completely new types of diesel engines; build prototype engines; and develop new ~~stammb~~ diesels after known

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types for VP-~~SHR~~. In the latter field, the 20-KVD-25 marine diesel, (also known as D-2,500) had priority.

3. Name and data on a 20-KVD-25.

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For reasons unknown   this marine diesel was known by 2 different names: 20-KVD-25 as applied by MAT PUER TECHNIK and D-2,500 as applied by MINISTERIUM PUER MASCHINEBAU. The 2 symbols breakdown as: 20 stood for "20-cylinder", K for "Kurzhub" (short stroke), V for "viertakt" (4-cycle), D for "diesel", 25 was an unknown figure; D stood for "diesel", 2,500 represented the capacity in HP.

4. Origin.

The 20-KVD-25 marine diesel is based upon a total of 6 former MERCEDES-BENZ diesels of 2 the types MB-501 (probably 4) and MB-511 (probably 2 engines) acquired from west-GERMANY was the MB-518 with an increased capacity of 3,000-HP. Herr BOEHME had visited 1955-HAMBOVER-Industrial-fair in order to make inquiries about this further development; but was told by MERCEDES-BENZ representatives at the fair, that the MB-518 a ~~new~~ could not be sold at that time.

5. Now Bottlenecks.

Herr BOEHME's primary mission in connection with 20-KVD-25 development was to have at least 1 prototype engine running. Main obstacles were: the procurement of crankshafts; the hardening of crankshafts especially made for the engine; the procurement of special sodium-filled valves; and the procurement of bearings of all ~~km~~ kinds. With respect to the latter, special difficulties had arisen as the engine was of the V-type requiring special bearings. In order to overcome crankshaft bottlenecks, new die-sinkers were procured ~~a~~ from CZECHOSLOVAKIA which were ~~supposed~~ especially designed for 20-KVD-25 diesel crankshafts. These die-sinkers and a new 30-meter/ton hammer will be mounted in WILDAU heavy machinery plant in 1956, (see encl (1)). Cost for die-sinker and hammer procurement and mounting ~~up~~ will run to DM East 6,000,000. In the winter of 1955/56, the SOVZONE obtained 30 old unused 20-KVD-25 crankshafts from the CSM which had originally been made for the forerunner type MB-511.

6. New diesels to be developed after 20-KVD-model.

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Although no 20-KVD-25 diesel engine was operating   there were already plans asking for 2 new diesel engine models to be developed from the 20-KVD-25, one was a model with a capacity of between 400 and 1,000-HP and one 3,000-HP model. The first will most likely become a 6, 8, or 10-cylinder series-engine with a capacity of about 100-HP per cylinder (against 125-HP per cylinder of the present 20 cylinder MB-501/551 and 20-KVD-25 diesel) in order to achieve increased operational efficiency and engine life. The 3,000-HP model was planned to become a high-capacity engine for short runs. Both, the present 2,500-HP and the planned 3,000-HP models can stand only 500 hours of uninterrupted operation. HP-weight ratio of each engine is 1 to 1.2 kilogram per HP.

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7. Translated-extracts from Enclosure (1). (Underlined in red)

"80 meter/ton hammer to be designed and built in heavy machinery plant at WILDAM".

"Will be able to handle die forgings of between 300 and 800-kilogram weight".

"Production of crankshafts for diesel engines will be greatly increased."

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